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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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QUALCOMM INCORPORATED  
5775 MOREHOUSE DR.  
SAN DIEGO, CA 92121

EXAMINER
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DANIEL JR, WILLIE J

ART UNIT	PAPER NUMBER
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2617

NOTIFICATION DATE	DELIVERY MODE
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05/12/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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nanm@qualcomm.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/774,561	<b>Applicant(s)</b> PARK ET AL.	
	<b>Examiner</b> WILLIE J. DANIEL JR	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 58-108 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 58-108 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This action is in response to applicant's amendment filed on 21 April 2010. **Claims 58-108** are now pending in the present application and **claims 1-57** are canceled. This office action is made **Non-Final**.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 April 2010 has been entered.

### ***Specification***

3. The disclosure is objected to because of the following informalities:
  - a. The specification recites the language "...or neat the..." on pg. 9, line(s) 5. The Examiner interprets as --or near the-- and suggests replacing said language to help clarify the specification.

Appropriate correction is required.

4. This list of examples is not intended to be exhaustive.

***Claim Objections***

5. **Claims 71, 103, and 107** are objected to because of the following informalities:
- a. Claim 71 is improperly labeled as “Previously Presented” but the claim includes amended language. The Examiner interprets the claims as --Currently Amended-- and suggests clarifying the claim status.
  - b. Claim 103 recites the limitation “...**the** respective intended end node...” in line(s) 40 of the claim. The Examiner interprets as --**a** respective intended end node -- and suggests replacing said limitation to help clarify the claim language.
  - c. Claim 107 recites the limitation “...delay**1**...” in line(s) 3 of the claim. The Examiner interprets as --delay. -- and suggests replacing said limitation to help clarify the claim language.
- Appropriate correction is required.
6. Due to the objections of the current claim language, the Examiner has given a reasonable interpretation of said language and the claims are rejected as broadest and best interpreted. In addition, applicant is welcomed to point out where in the specification the Examiner can find support for this language if Applicant believes otherwise.
7. This list of examples is not intended to be exhaustive. The Examiner respectfully requests the applicant to review all claims and clarify the issues as listed above as well as any other issue(s) that are not listed.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 58-59, 62-64, 66-68, 70, 73-75, 77-79, 81, 84-86, 88-90, 92, 95-97, 99-101, 103-104, and 108** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam (US 5,533,094)** in view of **Miah et al.** (hereinafter Miah) (**EP 1217855 A1**).

Regarding **claim 58**, Sanmugam discloses a system for distributed packet-based paging (see col. 4, line 56 - col. 5, line 45; Figs. 1 & 9), comprising:

a plurality of access nodes (e.g., BS 256) configured to exchange paging information over corresponding access links, the plurality of access nodes serving a plurality of end nodes (e.g., mobile station M1), each end node being associated with, and configured to receive a page from, at least one of the plurality of access nodes (see col. 4, line 56 - col. 5, line 45; Figs. 1 & 9),

wherein each of the plurality of access nodes (e.g., BS 256) comprises at least one of a paging requirements determination module (e.g., BS 256) and a paging resource control module (e.g., BS 256) (see col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9 & 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent,

wherein each paging requirements determination module is configured to determine paging requirements to send to a paging resource control module in communication with an

intended end node of the page, the paging requirements being determined at least in part (i) from analyzing at least one of a header field or a payload field, using a packet classification technique (e.g., class of service or priority), from a data message (e.g., page requests) received over a corresponding access link and (ii) from stored information uniquely associated with the access node (e.g., BS 256) in which the paging requirements determination module resides (see col. 5, lines 40-45; col. 4, line 66 - col. 5, line 13; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 1, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent in which a header field would be implicit due to paging information of the paging requests as evidenced by the fact that one of ordinary skill in the art would clearly recognize. In addition, paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately., and

wherein each paging resource control module is configured to provide paging resource control functionality in accordance with the paging requirements received from the paging requirements determination module, where the paging resource control functionality includes controlling at least one of (i) paging resources, (ii) paging operations, or (iii) the generation of pages to the intended end node (see col. 5, lines 40-45; col. 10, lines 53-56; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; Figs. 9, 1, 8A-B), where a base station provides allocates resources to a mobile station (M1) (see col. 4, line 64 - col. 5, line 13) and where

paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40; col. 8, line 45 - col. 9, line 4), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately. Sanmugam inexplicitly discloses having the feature(s) at least one of a header field or a payload field. However, the examiner maintains that the feature(s) at least one of a header field or a payload field was well known in the art, as taught by Miah.

In the same field of endeavor, Miah discloses the feature(s) at least one of a header field or a payload field (see col. 2, [0012]; Fig. 1), where the radio access network reads the header (e.g., an indicator of type or priority) of a paging message to schedule or prioritize for transmitting to a mobile phone (2). As further support, Miah at the least further the feature(s) discloses a system for distributed packet-based paging, comprising: a plurality of access nodes (e.g., radio access network with RNC 12, node B 16, and transmitter/receiver 20) configured to exchange paging information over corresponding access links, the plurality of access nodes (e.g., radio access network with RNC 12, node B 16, and transmitter/receiver 20) serving a plurality of end nodes (e.g., mobile station 2), each end node (e.g., 2) being associated with, and configured to receive a page from, at least one of the plurality of access nodes (see col. 1, [0007]; col. 2, [0015] - col. 3, [0017]), where the mobile station (2) is sent a paging message.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the

feature(s) at least one of a header field or a payload field, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; [0012 or lines 14-18]).

Regarding **claims 59, 70, 81, and 92**, Sanmugam discloses an access node for use in a system for distributed packet-based paging (see col. 4, line 56 - col. 5, line 45; Figs. 1 & 9), comprising:

a paging requirements determination module (e.g., BS 256) and a paging resource control module (e.g., BS 256) (see col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9 & 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent,

wherein the paging requirements determination module is configured to determine paging requirements to send to the paging resource control module in communication with an intended end node of a page, the paging requirements being determined at least in part (i) from analyzing at least one of a header field or a payload field, using a packet classification technique (e.g., class of service or priority), from a data message (e.g., page requests) received over a corresponding access link and (ii) from stored information uniquely associated with the access node (e.g., BS 256) in which the paging requirements determination module resides (see col. 5, lines 40-45; col. 4, line 66 - col. 5, line 13; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 1, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent in which a header field would be implicit due to paging information of the paging requests as evidenced by the fact that one of ordinary



skill in the art would clearly recognize. In addition, paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately.,

wherein the paging resource control module is configured to provide paging resource control functionality in accordance with the paging requirements received from the paging requirements determination module, where the paging resource control functionality includes controlling at least one of (i) paging resources, (ii) paging operations, or (iii) the generation of pages to the intended end node (see col. 5, lines 40-45; col. 10, lines 53-56; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; Figs. 9, 1, 8A-B), where a base station provides allocates resources to a mobile station (M1) (see col. 4, line 64 - col. 5, line 13) and where paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40; col. 8, line 45 - col. 9, line 4), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately, and

wherein the access node (e.g., BS 256) is configured to exchange paging information with a second access node (e.g., BS 256) in the system for distributed packet-based paging over an access link, and to serve at least one end node (e.g., mobile station M1), each of the at least one end node being associated with, and configured to receive a page from, at least one access node (see col. 4, line 56 - col. 5, line 45; col. 14, lines 40-51; Figs. 1 & 9), where

a mobile station can receive a message in a second cell (e.g., 256) after being hand-off to another cell (e.g., 256) (see col. 5, lines 19-27, 51-57; col. 13, lines 43-50; col. 6, lines 21-25). Sanmugam inexplicitly discloses having the feature(s) at least one of a header field or a payload field. However, the examiner maintains that the feature(s) at least one of a header field or a payload field was well known in the art, as taught by Miah.

In the same field of endeavor, Miah discloses the feature(s) at least one of a header field or a payload field (see col. 2, [0012]; Fig. 1), where the radio access network reads the header (e.g., an indicator of type or priority) of a paging message to schedule or prioritize for transmitting to a mobile phone (2). As further support, Miah at the least further discloses the feature(s) the access node (e.g., radio access network with RNC 12, node B 16, and transmitter/receiver 20) is configured to exchange paging information with a second access node (e.g., radio access network with RNC 14, node B 18, and transmitter/receiver 22) in the system for distributed packet-based paging over an access link, and to serve at least one end node (e.g., mobile station 2), each of the at least one end node (e.g., mobile station 2) being associated with, and configured to receive a page from, at least one access node (see col. 1, [0007]; col. 2, [0015] - col. 3, [0017]), where the mobile station (2) is sent a paging message.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the feature(s) at least one of a header field or a payload field, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; 0012 or lines 14-18]).

Regarding **claims 62, 73, 84, and 95**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 59), in addition Sanmugam further discloses the access node of claim 59, wherein the exchange of the paging information is based on an Internet protocol (IP) (see col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent. As further support, Miah at the least discloses the feature(s) wherein the exchange of the paging information is based on an Internet protocol (IP) (see col. 1, [0002 or lines 13-16]; col. [0012 or lines 12-23]), where communication is provided by a packet radio system exchanging data or paging signals.

Regarding **claims 63, 74, 85, and 96**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 62), in addition Sanmugam further discloses the access node of claim 62, wherein the paging requirements determination module is further configured to determine the paging requirements based on matching IP datagrams to specific paging requirements (see col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent. As further support, Miah at the least discloses the feature(s) wherein the paging requirements determination module is further configured to determine the paging requirements based on matching IP datagrams to specific paging requirements (see col. 1, [0002 or lines 13-16]; col. [0012 or lines 12-23]), where communication is provided by a packet radio system exchanging data or paging signals.

Regarding **claims 64, 75, 86, and 97**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 59), in addition Sanmugam further discloses the access node of claim 59, wherein at least one of the determined paging requirements is indicative of a quality of service (QoS) (e.g., class of service or priority) (see col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent. As further support, Miah at the least discloses the feature(s) wherein at least one of the determined paging requirements is indicative of a quality of service (QoS) (e.g., an indicator of type or priority) (see col. [0012 or lines 12-23]), where communication is provided by a packet radio system exchanging data or paging signals.

Regarding **claims 66, 77, 88, and 99**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 64), in addition Sanmugam further discloses the access node of claim 64, wherein the QoS (e.g., class of service or priority) is one of a plurality of levels (see col. 7, lines 8-15; col. 8, line 1-25,45-64; col. 9, line 59-62,8-18; col. 13, lines 1-32; Figs. 9, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent.

Regarding **claims 67, 78, 89, 100, and 108**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 64), in addition Sanmugam further discloses the access node of claim 64, wherein the QoS (e.g., class of service or priority) requires at least one of transmission of the page multiple times and retransmission of

the page at least once in the absence of an acknowledgment (see col. 6, lines 22-40; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; col. 13, lines 1-32; Figs. 9, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent.

Regarding **claims 68, 79, 90, and 101**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 59), in addition Sanmugam further discloses the access node of claim 59, wherein the determined paging requirements comprises determining whether a plurality of paging requests are associated as a group with a common quality of service indicator (see col. 8, lines 24-30, 1-9; col. 6, lines 24-26; col. 7, lines 8-15; col. 10, lines 32-34); and

the paging resource control functionality comprises allocating a fraction of paging channel capacity or paging transmission opportunities to the plurality of page requests associated with the group (see col. 8, lines 1-11, 30-34; col. 7, lines 8-15; col. 10, lines 53-56; Figs. 9, 2-3).

Regarding **claims 103-104**, Sanmugam discloses an end node for use in a system for distributed packet-based paging (see col. 4, line 56 - col. 5, line 45; Figs. 1 & 9), comprising:

means for receiving a first page from a first access node (e.g., 256) having a first paging resource control module, where the first paging resource control module generates the first page to the end node (e.g., M1) on the basis of a data message received by a first paging requirements determination module (see col. 13, lines 43-50; col. 6, lines 21-25); and

means for receiving a second page, different from the first page, from a second access node (e.g., 256) having a second paging resource control module, where the second paging

resource control module generates the second page on the basis of the same data message received by a second paging requirements determination module (see col. 5, lines 19-27,51-57; col. 13, lines 43-50; col. 6, lines 21-25), where a mobile station can receive a message in a second cell (e.g., 256) after being hand-off to another cell (e.g., 256),

wherein the first access node (e.g., BS 256) and the second access node (e.g., BS 256) are configured to exchange paging information corresponding to the first page and the second page over corresponding access links (see col. 4, line 56 - col. 5, line 45; col. 14, lines 40-51; Figs. 1 & 9), where a mobile station can receive a message in a second cell (e.g., 256) after being hand-off to another cell (e.g., 256) (see col. 5, lines 19-27,51-57; col. 13, lines 43-50; col. 6, lines 21-25), and

wherein each of the first and second paging requirements determination module (e.g., BS 256) is configured to determine paging requirements to send to the first and second paging resource control module, respectively, currently in communication with an intended end node of the first and second page, the respective paging requirements being derived at least in part (i) from analyzing at least one of a header field or a payload field, using a packet classification technique (e.g., class of service or priority), from a data message (e.g., page requests) received over a corresponding one of the access links and (ii) from stored information uniquely associated with the first or second access node (e.g., BS 256), respectively, in which the paging requirements determination module resides (see col. 5, lines 40-45; col. 4, line 66 - col. 5, line 13; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 1, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging

extent in which a header field would be implicit due to paging information of the paging requests as evidenced by the fact that one of ordinary skill in the art would clearly recognize. In addition, paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately., and

each respective paging resource control module is configured to provide paging resource control functionality in accordance with the paging requirements received from the paging requirements determination module, where the paging resource control functionality includes controlling at least one of (i) paging resources, (ii) paging operations, or (iii) the generation of pages to the respective an intended end node (see col. 5, lines 40-45; col. 10, lines 53-56; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; Figs. 9, 1, 8A-B), where a base station provides allocates resources to a mobile station (M1) (see col. 4, line 64 - col. 5, line 13) and where paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40; col. 8, line 45 - col. 9, line 4), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately. Sanmugam inexplicitly discloses having the feature(s) at least one of a header field or a payload field; and means for receiving a second page, different from the first page, from a second access node having a second paging resource control module, where the second paging resource control module generates

the second page on the basis of the same data message received by a second paging requirements determination module. However, the examiner maintains that the feature(s) at least one of a header field or a payload field; and means for receiving a second page, different from the first page, from a second access node having a second paging resource control module, where the second paging resource control module generates the second page on the basis of the same data message received by a second paging requirements determination module was well known in the art, as taught by Miah.

In the same field of endeavor, Miah discloses the feature(s) at least one of a header field or a payload field (see col. 2, [0012]; Fig. 1), where the radio access network reads the header (e.g., an indicator of type or priority) of a paging message to schedule or prioritize for transmitting to a mobile phone (2); and

means for receiving a second page, different from the first page, from a second access node (e.g., radio access network with RNC 12, node B 16, and transmitter/receiver 20) having a second paging resource control module, where the second paging resource control module generates the second page on the basis of the same data message received by a second paging requirements determination module (see col. 1, [0007]; col. 2, [0012 or lines 53-57]; col. 3, [0016 or lines 10-16]). As further support, Miah at the least further discloses the feature(s) an end node (e.g., mobile phone 2) for use in a system for distributed packet-based paging, comprising: wherein the first access node (e.g., radio access network with RNC 12, node B 16, and transmitter/receiver 20) and the second access node (e.g., radio access network with RNC 14, node B 18, and transmitter/receiver 22) are each configured to exchange paging information corresponding to the first page and the second page over



corresponding access links, and wherein each of the first and second paging requirements is configured to determine paging requirements determination to send to the first and second paging resource control module, respectively, currently in communication with an intended end node (e.g., mobile station 2) of the first and second page (see col. 1, [0007]; col. 2, [0015] - col. 3, [0017]), where the mobile station (2) is sent a paging message.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the feature(s) at least one of a header field or a payload field; and means for receiving a second page, different from the first page, from a second access node having a second paging resource control module, where the second paging resource control module generates the second page on the basis of the same data message received by a second paging requirements determination module, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; 0012 or lines 14-18]).

**Claims 60, 71, 82, 93, and 105** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam (US 5,533,094)** in view of **Miah et al.** (hereinafter Miah) (**EP 1217855 A1**) as applied to claims 59, 70, 81, and 92 above, and further in view of **Palat et al.** (hereinafter Palat) (**US 6,765,890 B1**).

Regarding **claim 60, 71, 82, 93, and 105**, Sanmugam discloses the access node of claim 59, wherein the paging requirements determination module further comprising:

a monitoring agent module that determines when to initiate a page to the intended end node (see col. 12, lines 15-28);

a tracking agent module that tracks the location of end nodes based on received location update signals (see col. 7, lines 23-36); and

an anchor paging agent module that coordinates (e.g., priority or order) page request signaling to the intended node (see col. 8, lines 5-9,24-25). The combination of Sanmugam and Miah inexplicitly discloses having the feature(s) received location update signals. However, the examiner maintains that the feature(s) received location update signals was well known in the art, as taught by Palat.

In the same field of endeavor, Palat discloses the feature(s) received location update signals (see col. 4, lines 11-19; col. 5, lines 17-26; col. 6, lines 4-20,44-51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam, Miah, and Palat to have the feature(s) received location update signals, in order to provide an implementation that performs a routing area update as a mobile terminal moves between radio access system coverage areas, as taught by Palat (see col. 2, lines 11-15).

**Claims 61, 72, 83, 94, and 106** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam (US 5,533,094)** in view of **Miah et al.** (hereinafter Miah) (**EP 1217855 A1**) as applied to claims 59, 70, 81, and 92 above, and further supported by **Wallentin et al.** (hereinafter Wallentin) (**US 6,834,191 B2**).

Regarding **claims 61, 72, 83, 94, and 106**, Sanmugam discloses the access node of claim 59, wherein the paging resource control module further comprises:

a local paging agent module configured to coordinate signaling between the paging requirements determination module and other access nodes (see col. 5, lines 19-27; col. 5, line 65 - col. 6, line 5; col. 6, lines 17-43; Figs. 1-2 & 9), where the system pages surrounding location areas. Sanmugam inexplicitly discloses having the feature(s) signaling between the paging requirements determination module and other access nodes. However, the examiner maintains that the feature(s) signaling between the paging requirements determination module and other access nodes was well known in the art, as taught by Miah.

In the same field of endeavor, Miah discloses the feature(s) signaling between the paging requirements determination module and other access nodes (see col. 1, [0005]; col. 2, [0012, 0015/lines 53-57]), where the RNC (12, 14) are interlinked to communicate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the feature(s) signaling between the PRD module and other access nodes, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; 0012 or lines 14-18]). The combination of Sanmugam and Miah clearly discloses the feature(s) indicated above as evidenced by the fact that one of ordinary skill in the art would clearly recognize. However, the examiner maintains that the feature(s) a local paging agent module that coordinates signaling between the PRD module and other access nodes was well known in the art, as taught by Wallentin.

As further support in the same field of endeavor, Wallentin discloses the feature(s) a local paging agent module that coordinates signaling between the PRD module and other access nodes (see col. 7, lines 19-23; col. 13, lines 17-31; Figs. 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah as further supported by Wallentin to have the feature(s) a local paging agent module that coordinates signaling between the PRD module and other access nodes, in order to provide a technique for paging a mobile station in a multicell area, as taught by Wallentin (see col. 4, lines 24-27).

**Claims 65, 76, 87, 98, and 107** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam (US 5,533,094)** in view of **Miah et al.** (hereinafter Miah) (**EP 1217855 A1**) as applied to claim 64, 75, 86, and 97 above, and further in view of **Laroia et al.** (hereinafter Laroia) (**US 6,823,191 B2**).

Regarding **claims 65, 76, 87, 98, and 107**, Sanmugam discloses the access node of claim 64, wherein the QoS comprises a page transmission timing constraint (see col. 10, lines 4-6; col. 12, lines 12-18,31-40; Fig. 8B 'ref. 212'), where a paging attempt has a priority for waiting time in a buffer. Sanmugam does not specifically disclose having the feature(s) wherein the page transmission timing constraint indicates paging latency information and specifies an upper bound on paging delay. However, the examiner maintains that the feature(s) wherein the page transmission timing constraint indicates paging latency information and specifies an upper bound on paging delay was well known in the art, as taught by Laroia.

In the same field of endeavor, Laroia discloses the feature(s) wherein the page transmission timing constraint indicates paging latency information and specifies an upper bound on paging delay (see col. 3, line 38 - col. 4, lines 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam, Miah, and Laroia to have the feature(s) wherein the page transmission timing constraint indicates paging latency information and specifies an upper bound on paging delay, in order to have latency significantly reduced in a base station transmitting a paging message to a wireless terminal receiving a paging message, as taught by Laroia (see col. 2, lines 33-36).

**Claims 69, 80, 91, and 102** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam (US 5,533,094)** in view of **Miah et al.** (hereinafter Miah) (**EP 1217855 A1**) as applied to claim 59, 70, 81, and 92 above, and further in view of **Weber et al.** (hereinafter Weber) (**US 6,314,282 B1**).

Regarding **claims 69, 80, 91, and 102**, the combination of Sanmugam and Miah discloses every limitation claimed as applied above in claim 59. The combination of Sanmugam and Miah does not specifically disclose having the feature(s) wherein the determined paging requirements comprise information indicating a state of device operation in which an end node to which the page is directed is to operate after receiving the page. However, the examiner maintains that the feature(s) wherein the determined paging requirements comprise information indicating a state of device operation in which an end

node to which the page is directed is to operate after receiving the page was well known in the art, as taught by Weber.

In the same field of endeavor, Weber discloses the feature(s) wherein the determined paging requirements comprise information indicating a state of device operation in which a mobile terminal (7) which reads on the claimed “end node” to which the page is directed is to operate after receiving the page (see col. 5, lines 40-49, 3-22; col. 6, lines 13-20; Figs. 3, 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam, Miah, and Weber to have the feature(s) wherein the determined paging requirements comprise information indicating a state of device operation in which an end node to which the page is directed is to operate after receiving the page, in order to provide mode change information that will automatically change the mode of a mobile terminal, as taught by Weber (see col. 2, lines 9-13, 65-67).

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 58-108 have been considered but are moot in view of the new ground(s) of rejection necessitated by the new claims.

In response to applicant's arguments, the Examiner respectfully disagrees as the applied reference(s) provide more than adequate support and to further clarify (see the above claims for relevant citations and comments in this section).

10. The Examiner requests applicant to provide support (e.g., page(s), line(s), and drawing(s) as well as comments) for the new and/or amended claim language and any further amended claim language.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
- a. Bender et al. (US 6,961,329 B1) discloses a method and apparatus for forwarding messages among multiple radio networks. Bender at the least further discloses ...unsolicited CDMA message (e.g., paging request messages) are sent by the MSC to the CDMA radio network (see Bender - col. 8, lines 11-13). In addition, Bender further discloses ...unsolicited CDMA messages are thus sent...and can be sent by...the CDMA BSC to the HDR BSC with which the access terminal has tuned (see Bender - col. 8, lines 23-26).
  - b. Melpignano et al. (US 7,193,991 B2) discloses a radio communication arrangements. Melpignano at the least further discloses ...the currently connected access point AP<sub>1</sub>...transmits a multicast page request message...to its neighboring access points AP<sub>2</sub>, AP<sub>3</sub>, which are the access points into whose coverage area the mobile terminal MT may have moved or be heading (see Melpignano - col. 12, lines 36-42).

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIE J. DANIEL JR whose telephone number is (571)272-7907. The examiner can normally be reached on 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WJD,Jr/

WJD,Jr  
07 May 2010

/Charles N. Appiah/  
Supervisory Patent Examiner, Art Unit 2617